



# Myalgic Encephalomyelitis/Chronic Fatigue Syndrome



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CDC's website is being modified to comply with President Trump's Executive Orders.

## What Causes ME/CFS Causes

### KEY POINTS

- Scientists don't yet know what causes myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS).
- The disease may have more than one cause or environmental factor that triggers it.
- Many areas are being researched to understand what causes ME/CFS including infections and genetics.



## Possible causes

Because the cause of ME/CFS is not known, many potential causes are being studied. These include infections, how the body uses energy, how people respond to infection, inflammation, toxins or injury, and genetics.

### Infections

People with ME/CFS often begin with an illness similar to the flu. This has made researchers suspect an infection may trigger ME/CFS.

About 1 in 10 people who get infected by [Epstein-Barr virus](#), [Ross River virus](#), or [Coxiella burnetii](#) later develop an illness like ME/CFS. This is especially true if they had severe symptoms of these infections. But not all people with ME/CFS have had these infections. In addition, people have reported ME/CFS-like illness following the COVID-19 infections, called Long COVID.

Chronic symptoms [following other acute infections](#) are experienced by some patients. These chronic symptoms resemble ME/CFS. Because of this, ME/CFS may be a chronic illness following an unknown infection.

### Immune system changes

It is possible ME/CFS is caused by changes in a person's immune system or how it responds to infection or stress. ME/CFS shares some features of autoimmune illnesses. In these types of diseases, the immune system attacks the body's healthy tissues. Examples of autoimmune diseases are rheumatoid arthritis and fibromyalgia.

Both ME/CFS and autoimmune disease are more common in women and both are characterized by increased inflammation. However, other signs of autoimmune disease, like tissue damage, have not been found in people with ME/CFS.

### Stress affecting body chemistry

Patients with ME/CFS commonly report infections, or physical or emotional stress before they become ill. Some patients with ME/CFS have lower levels of the hormone cortisol than healthy people.

Cortisol, also called "the stress hormone," helps calm down the immune system. Low cortisol levels may lead to increased inflammation and chronic activation of the immune system.

Unfortunately, cortisol levels in people with ME/CFS are low but still in the normal range. So, they cannot be used to diagnose or treat ME/CFS.

Other hormones may also be changed in people with ME/CFS.

### Changes in energy production

Scientists have found differences between people with ME/CFS and healthy people in the way their cells use food to create energy. As a result, people with ME/CFS have less fuel to keep their brain and muscles active.

More studies are needed to figure out whether this is always true and to understand what may be causing it.

## Possible genetic link

Sometimes, members of the same family have ME/CFS. Studies done in twins and families suggest that genes and environment might both play a role in ME/CFS. Scientists have not yet found the exact genes or environmental factors that may be responsible. More research is needed.

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SOURCES

**CONTENT SOURCE:**  
[National Center for Emerging and Zoonotic Infectious Diseases \(NCEZID\)](#)